



DATA CENTRE NETWORKS THE MISSED LINK

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DATA CENTRE TO CLOUD – WHAT'S CHANGING?

Application
Evolution



Infrastructure
Virtualization



Consolidation



Convergence



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DATA CENTRE TO CLOUD – WHERE'S THE IMPACT?

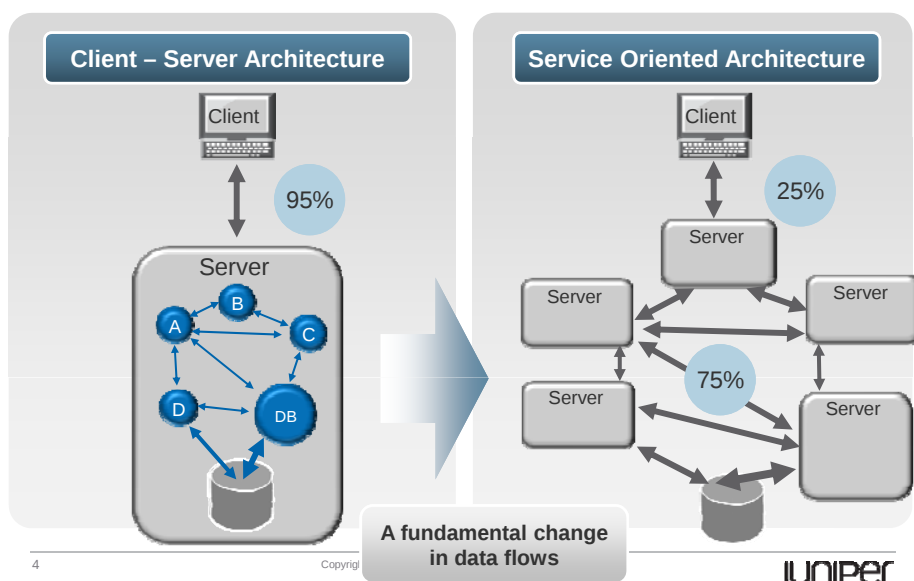
	Traffic Patterns	Latency	Loss	Scale	Economics	Management & Provisioning	Footprint and Energy	Security	Reliability
Application Evolution	✓	✓						✓	
Virtualisation	✓	✓				✓		✓	
Consolidation				✓	✓	✓	✓		✓
Convergence	✓	✓	✓		✓	✓			✓

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TRAFFIC PATTERN EVOLUTION



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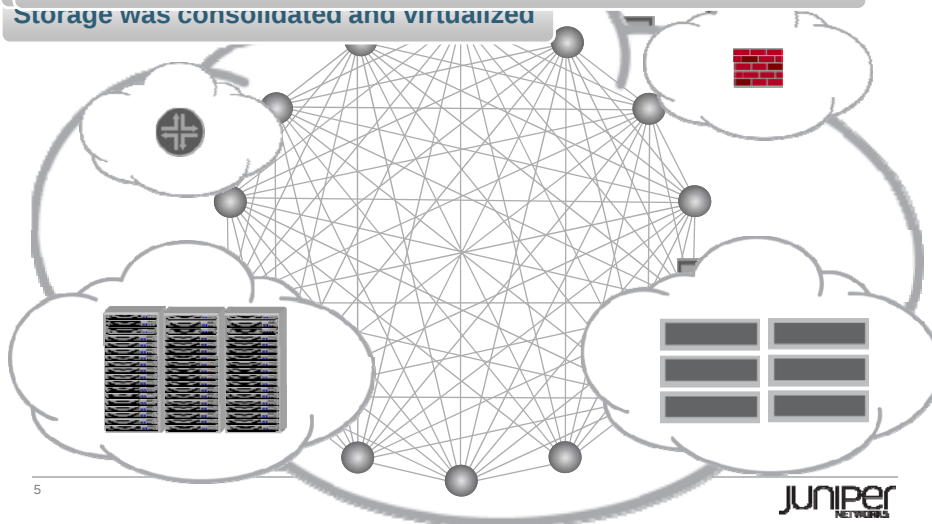
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STORAGE JUST ADDS TO THE STRESS

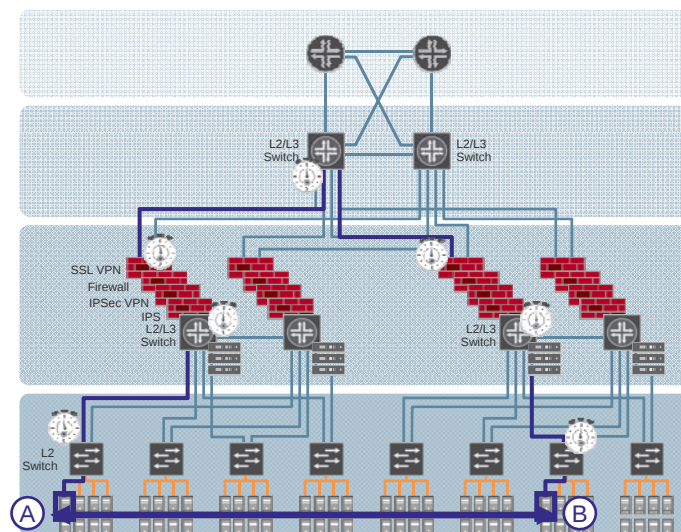
Servers were consolidated, standardized and virtualized

Now they want a single network to integrate the resource pools!

Storage was consolidated and virtualized



LATENCY IN TODAY'S DATA CENTRE

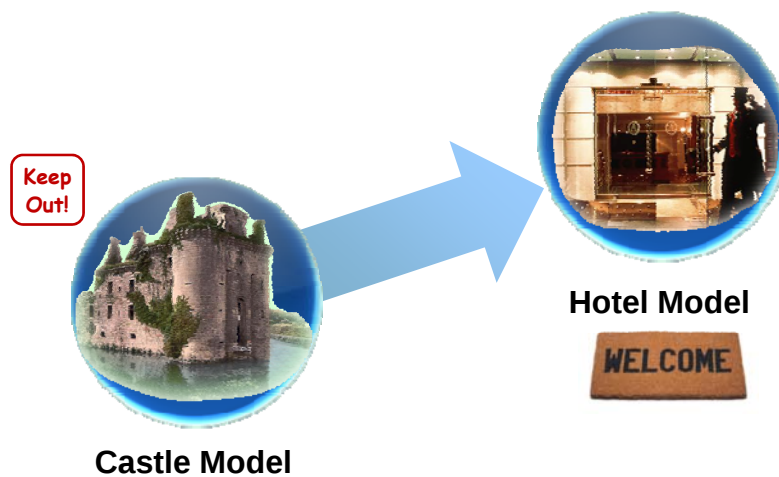


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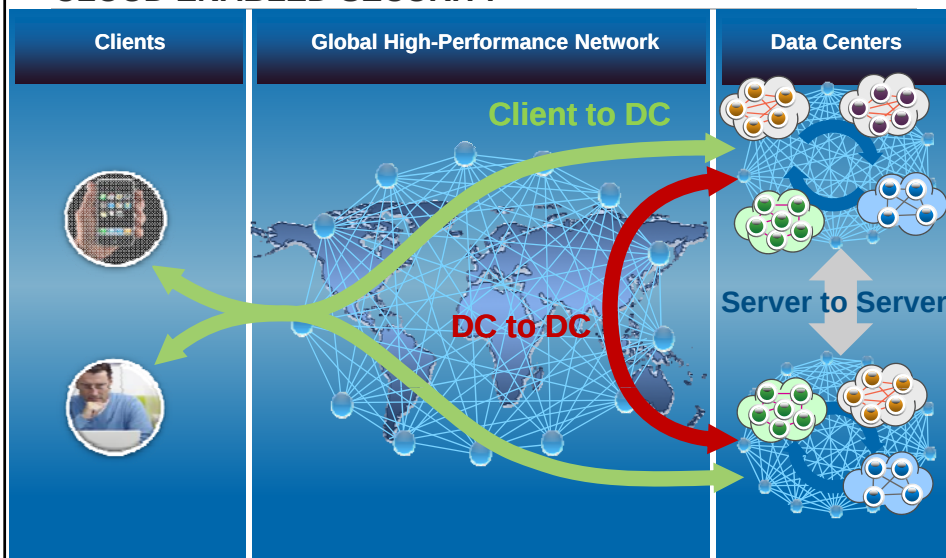
SECURITY – NEW MODEL FOR THE CLOUD



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CLOUD ENABLED SECURITY



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LEGACY NETWORK MANAGEMENT

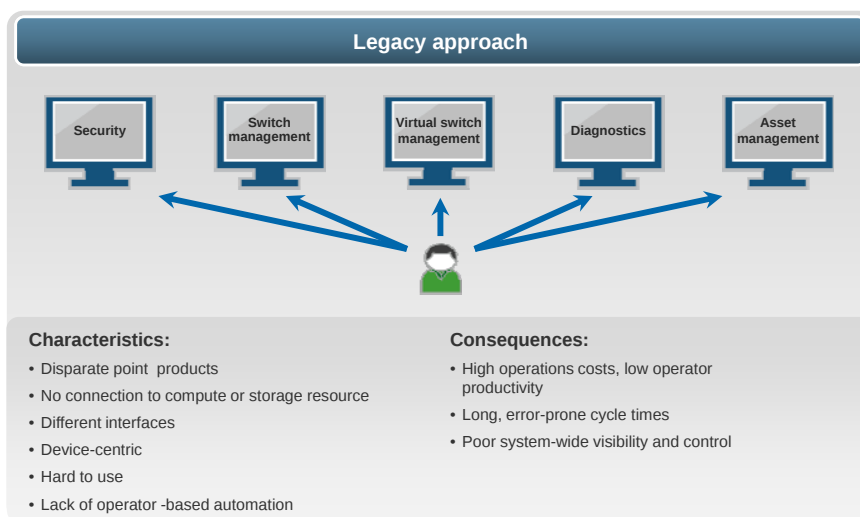


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LEGACY NETWORK AUTOMATION TOOLS: BUILT TO SOLVE POINT PROBLEMS



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THE PAIN POINTS OF CONSOLIDATION

Scaling

- Consolidating many Data Centres teaches you all about N^2
- Number of endpoints in Data Centres is increasing by an order of magnitude.

Energy and Space Footprint.

- Increase in communications density makes the network the fastest-growing part of the data centre.

Availability

- “put all your eggs in one basket and then *watch* that basket.”
- The Data Centre Network can never be turned off.
- ISSU, Non-stop operation, aggressive redundancy.....

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SO--- WATCHA GONNA DO ABOUT IT?

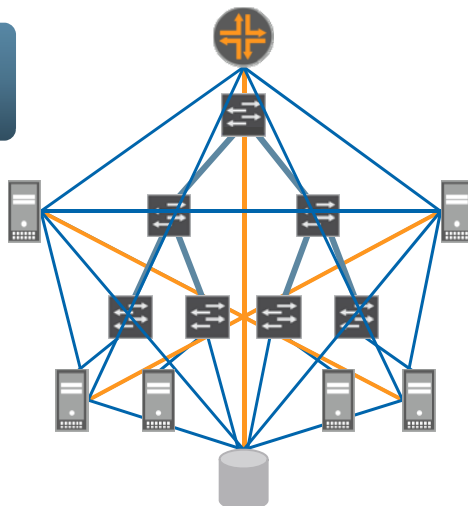


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DEFINING THE IDEAL NETWORK

Flat, any-to-any connectivity



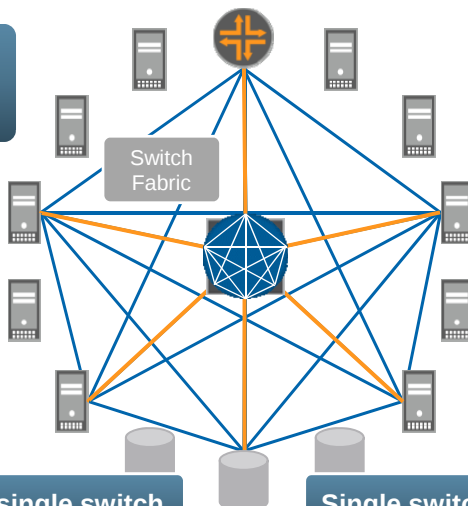
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DEFINING THE IDEAL NETWORK

Flat, any-to-any connectivity

Single device
N=1



Switch Fabric

Data Plane

- Flat – single look up
- Any-to-any

Control Plane

- Single device
- Shared state

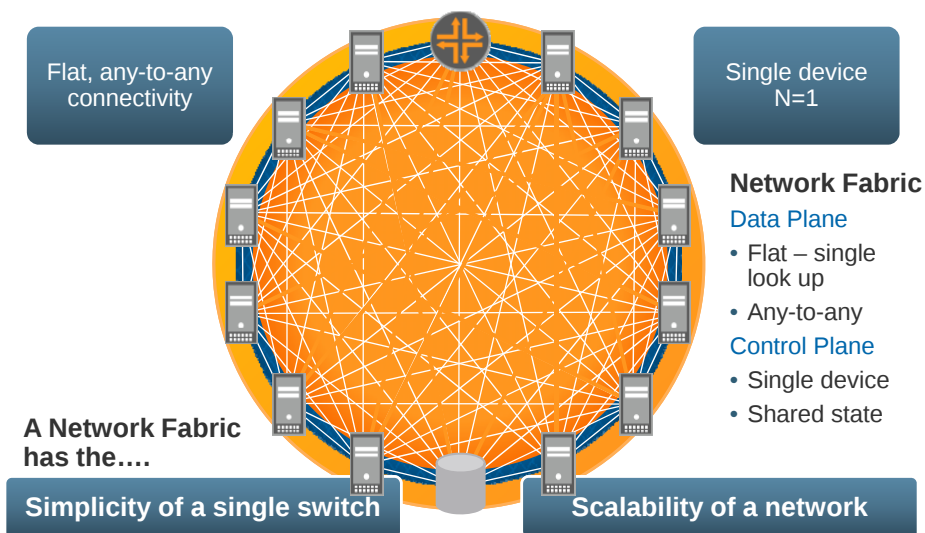
Simplicity of a single switch

Single switch does not scale

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DEFINING THE IDEAL NETWORK – A FABRIC



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THE LAW OF 1

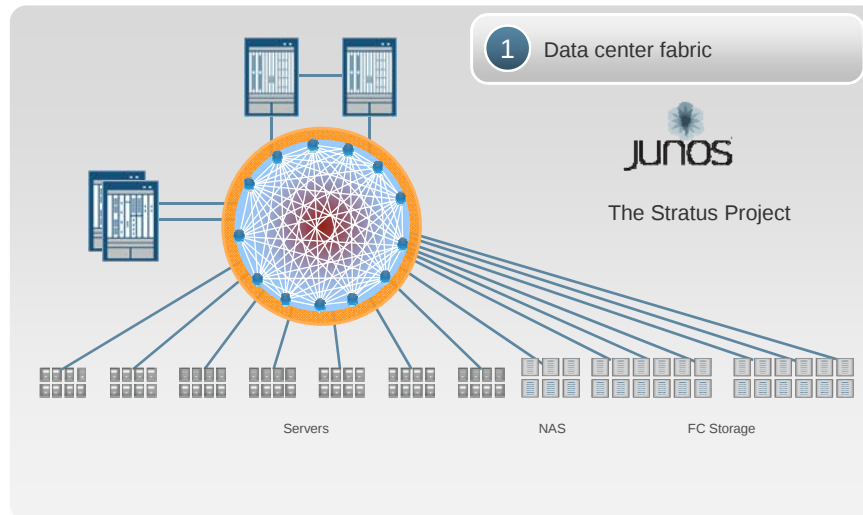
A True Fabric has.....

- 1 Device
- 1 Layer (may have multiple switching planes)
- 1 Forwarding plane
- 1 Control plane
- 1 Management plane
- 1 Device state
- 1 Heck of a lot of endpoints
- 0 Packet loss

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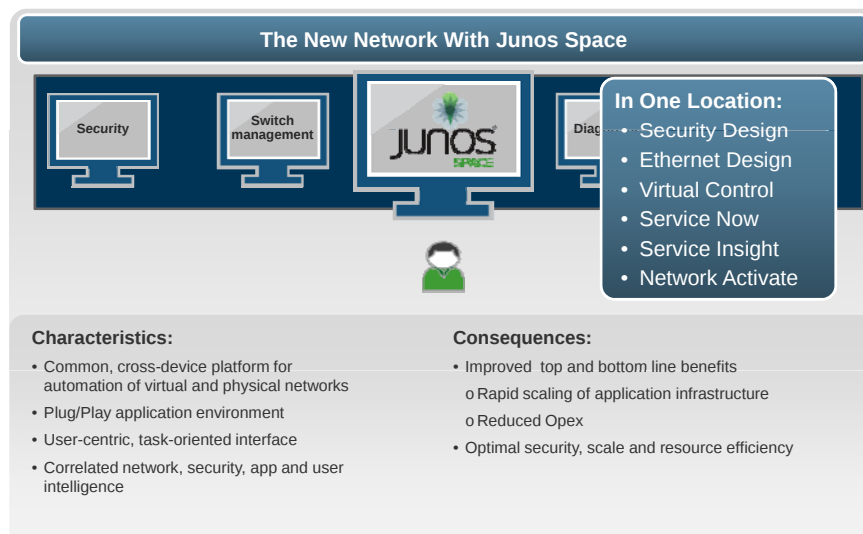
FABRIC – THE STRATUS PROJECT



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JUNOS SPACE ORCHESTRATES THE NEW NETWORK



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